

**WHAT IS CLAIMED IS:**

**1. A used-can processing system comprising a shredder for cutting a used can, and a pelletizer for pelletizing cut pieces of the used can produced by the shredder, wherein**

**the shredder comprises:**

**a pair of rotary blade units disposed such that their circumferential surfaces having blades formed thereon face each other, the rotary blade units rotating in opposite directions, whereby the circumferential surfaces of the rotary blade units move downward in a facing region where the circumferential surfaces face each other, to thereby cut a used can thrown from above the facing region and feed the cut can downward; and**

**a pair of auxiliary rotary blade units disposed on the upper side of the respective rotary blade units such that their circumferential surfaces having blades formed thereon face the circumferential surfaces of the respective rotary blade units in regions outside the facing region, each of the auxiliary rotary blade units rotating in the same direction as does the corresponding rotary blade unit, to thereby urge, toward the pair of rotary blade units, the used can thrown from above the pair of rotary blade units.**

**2. A used-can processing system according to claim 1, wherein each of the blades of the rotary blade units and the auxiliary rotary blade units has projecting portions and depressed portions formed alternately along the circumferential direction on the circumferential surface of the corresponding blade.**

**3. A used-can processing system according to claim 1, wherein a**

screen having cut-pieces removal holes is disposed below and along the pair of rotary blade units and the pair of auxiliary rotary blade units, whereby cut pieces of the used can that have been cut by means of the pair of rotary blade units and the pair of auxiliary rotary blade units and having sizes less than a predetermined size are fed downward through the cut-pieces removal holes, and cut pieces having sizes not less than the predetermined size are guided and fed to regions above the pair of rotary blade units by means of rotation of the pair of rotary blade units and the pair of auxiliary rotary blade units.

4. A used-can processing system according to claim 1, wherein the pelletizer includes:

a chamber provided with a screen having a pellet removal hole through which pellets having a predetermined size or less pass; and

a rotary body disposed within the chamber and having a hammer formed on a circumferential surface of the rotary body, the rotary body deforming cut pieces fed into the chamber to pellets by applying impact to the cut pieces by means of the hammer.

5. A used-can processing system according to claim 1, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and which have a predetermined size.

6. A used-can processing system according to claim 2, wherein a screen having cut-pieces removal holes is disposed below and along the

pair of rotary blade units and the pair of auxiliary rotary blade units, whereby cut pieces of the used can that have been cut by means of the pair of rotary blade units and the pair of auxiliary rotary blade units and having sizes less than a predetermined size are fed downward through the cut-pieces removal holes, and cut pieces having sizes not less than the predetermined size are guided and fed to regions above the pair of rotary blade units by means of rotation of the pair of rotary blade units and the pair of auxiliary rotary blade units.

7. A used-can processing system according to claim 2, wherein the pelletizer includes:

a chamber provided with a screen having a pellet removal hole through which pellets having a predetermined size or less pass; and

a rotary body disposed within the chamber and having a hammer formed on a circumferential surface of the rotary body, the rotary body deforming cut pieces fed into the chamber to pellets by applying impact to the cut pieces by means of the hammer.

8. A used-can processing system according to claim 2, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and which have a predetermined size.

9. A used-can processing system according to claim 3, wherein the pelletizer includes:

a chamber provided with a screen having a pellet removal hole

through which pellets having a predetermined size or less pass; and  
a rotary body disposed within the chamber and having a hammer formed on a circumferential surface of the rotary body, the rotary body deforming cut pieces fed into the chamber to pellets by applying impact to the cut pieces by means of the hammer.

10. A used-can processing system according to claim 3, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and removed through the cut-pieces removal holes, the cut pieces having a predetermined size.

11. A used-can processing system according to claim 4, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and which have a predetermined size.

12. A used-can processing system according to claim 6, wherein the pelletizer includes:

a chamber provided with a screen having a pellet removal hole through which pellets having a predetermined size or less pass; and

a rotary body disposed within the chamber and having a hammer formed on a circumferential surface of the rotary body, the rotary body deforming cut pieces fed into the chamber to pellets by applying impact to the cut pieces by means of the hammer.

13. A used-can processing system according to claim 6, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and removed through the cut-pieces removal holes, the cut pieces having a predetermined size.

14. A used-can processing system according to claim 7, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and which have a predetermined size.

15. A used-can processing system according to claim 12, further comprising a heating apparatus for heating cut pieces which are produced as a result of cutting of the used can by means of the rotary blade units and the auxiliary rotary blade units and removed through the cut-pieces removal holes, the cut pieces having a predetermined size.

16. A used-can processing method comprising:

a cutting step of cutting a used can;

a sorting step of sorting cut pieces of the used can produced in the cutting step into cut pieces smaller than a predetermined size and cut pieces not smaller than the predetermined size;

a re-cutting step of again cutting the cut pieces not smaller than the predetermined size; and

a pelletization step of pelletizing cut pieces smaller than the predetermined size produced in the cutting step and the re-cutting step.

17. A used-can processing method according to claim 16, wherein the pelletization step includes a removing step of removing pellets pelletized to a predetermined size.

18. A used-can processing method according to claim 16, further comprising a heating step of heating cut pieces selected in the sorting step and including impurities so as to burn impurities adhering to the cut pieces.

19. A used-can processing method according to claim 17, further comprising a heating step of heating cut pieces selected in the sorting step and including impurities so as to burn impurities adhering to the cut pieces.